using a Constant-Rate-of-Traverse (CRT) testing machine.

(2) *Single strand breaking strength (after weathering).* After exposure in a sunshine carbon-arc weatherometer in accordance with Test Method 5804 in Federal Test Method Standard No. 191A for a period of 100 hours, the thread must retain at least 60 percent of its single strand breaking strength as received, and have a breaking strength of at least 21 N (4.7 lb.).

(3) *Loop breaking strength.* The thread, as received, must have a loop breaking strength of not less than 45 N (10.0 lb.), when tested in accordance with Test Method 4100 in Federal Test Method Standard No. 191A using a CRT testing machine, except that—

(i) Each specimen must consist of two 35 cm (14 in.) pieces of thread; and

(ii) Both ends of one piece of thread must be secured without twisting in one clamp of the testing machine so that the length of the loop formed equals one half the distance between the clamps. One end of the second piece must then be passed without twisting through the loop formed by the first, and both ends must be secured in the other clamp of the machine. The breaking strength must then be determined under the single strand test.

(b) *Use Code 4B.* Each non-standard thread which meets all of the requirements of paragraphs (b)(1) and (b)(2) of this section is assigned Use Code 4B.

(1) *Single strand breaking strength.* The thread as received must have a single strand breaking strength of not less than 160 N (36.0 lb.) when tested in accordance with Test Method 4100 in Federal Test Method Standard No. 191A using a CRT testing machine.

(2) *Single strand breaking strength (after weathering).* After exposure in a sunshine carbon-arc weatherometer in accordance with Test Method 5804 in Federal Test Method Standard No. 191A for a period of 100 hours, the thread must retain at least 60 percent of its single strand breaking strength.

(c) *Prohibited threads.* Cotton thread, and monofilament thread of any composition, will not be accepted for use in structural applications unless demonstrated to the Commandant to be equivalent to standard thread in durability in all foreseeable conditions of use and stowage.

§ 164.023–9 Samples submitted for acceptance.

Application samples. A product sample submitted for acceptance as required by § 164.019–7(c)(4) must consist of at least one unit of put-up of thread.

§ 164.023–11 Acceptance tests.

(a) *Performance testing.* Manufacturers shall ensure that the performance tests described in § 164.023–7 (a) or (b), as appropriate, are performed on a minimum of five samples in each of the lightest and darkest colors submitted for acceptance.

(b) *Identification testing.* Manufacturers shall ensure that the following identification tests are conducted:

(1) The average length/weight ratio of the thread in meters per kilogram (yards per pound) must be determined in accordance with Test Method 4010 in Federal Test Method Standard 191A.

(2) The generic chemical composition of the thread must be determined by qualitative infrared analysis, thermogravimetric analysis, differential scanning calorimeter, or other equivalent means adequate to conclusively identify the composition of the product tested.

(3) Elongation at break must be determined on the same samples tested for single strand breaking test in accordance with § 164.023–7(a)(1) or (b)(1), as appropriate.

§ 164.023–13 Production tests and inspections.

(a) *Manufacturer's test equipment and facilities.* The manufacturer shall provide the following test equipment and facilities for use in production tests and inspections:

(1) A Constant Rate of Traverse tensile testing machine, capable of initial clamp separation of ten inches and a rate of separation of 30 cm (12 in.) per minute.

(2) Fletcher, Callaway, U.S. Rubber clamps, or equivalent cam-actuated clamps to prevent slippage and twist of the samples.

(3) An analytical balance or grain-yarn scale, accurate to within 0.25 percent of the measured value.